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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/617,120	07/14/2000	Yoko Katsuya	925-151	5860
23117	7590	10/24/2003		
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714				
			EXAMINER NGUYEN, DUNG T	
			ART UNIT 2871	PAPER NUMBER

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/617,120	KATSUYA, YOKO	
	Examiner	Art Unit	
	Dung Nguyen	2871	AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-18 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7 and 19-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 25 July 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6-7</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's amendment dated 07/25/2003 has been received and entered.

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new grounds of rejection as follow:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-7 and newly added claims 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang, US Patent No. 5,745,195, in view of Zhang et al., US Patent No. 5,982,460.

Regarding claims 1 and 3, Zhang's figures 1-2 ('195) disclose an active matrix liquid crystal display (LCD) device comprising:

an insulating substrate (glass substrate 101);

a gate line (111) and a source line (113) act as a black matrix (see col. 2);

a thin film transistor having a gate electrode (110), a source electrode (113) and a drain electrode (114);

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a transparent conductive pixel electrode (117) having a specific resistance of not greater than $1\text{m}\Omega\cdot\text{cm}$ (e.g., ITO) and connecting to the TFT (figure 1), wherein the pixel electrode have edge portions overlapping a gate bus line (111) and a source bus line (113) (figure 2);

a liquid crystal layer being held between the TFT substrate and an opposite substrate (the counter substrate) (col. 2, lines 17-19);

a supplementary capacitance (auxiliary capacitor) being provided by the pixel electrode (117), a supplementary capacitance use transparent insulating film (interlayer dielectric film 116) formed under the pixel electrode and a transparent conductive (ITO) common electrode (115) which overlapping gate bus line (111) connected to a specified potential (a common potential) (col. 2, ln. 63);

Zhang ('195) does not disclose the common electrode is arranged between the gate/source bus line and the pixel electrode so as to cover at least portions of the gate/source bus line. Zhang et al ('460) do discloses that a common electrode (22) which constitution a capacitor (25a/25b) can be covered a source bus line (figure 1E). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form the Zhang's common electrode covering the source bus line as shown by Zhang et al. ('460) in order to protect a wiring electrode (e.g., gate bus line and/or source bus line and/or TFT) underneath and protect signals on each bus line not being applied to the pixel electrode (see abstract).

Regarding claims 2, 5, 19-21 and 23-25, Zhang disclose the claimed invention as described above except for a based material for the supplementary capacitance use transparent insulating film. Zhang et al ('460) does disclose an organic resin material (e.g., polyimide) can be used as an interlayer dielectric layer (503)(col. 17, lines 52-53), so as a difference between a

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refractive index of the supplementary capacitance use transparent insulating film (refraction index of polyimide= $1.67 \approx 1.9$) and a refractive index of the pixel electrode/common electrode (ITO= $1.9-2.0$) is not greater than 0.6. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to modify the Zhang's LCD device having a polyimide based material as a supplementary capacitance use transparent insulating film as shown by Yamazaki in order to obtain a large capacitances in a supplementary capacitance since polyimide is a one of a known material having a large dielectric constant. It should be noted that the modification to Zhang would employ the same dielectric film as claimed; therefore, it would maximize transmittance of the display at a particular wavelength as well.

Regarding claim 22, it would have been obvious to one skilled in the art to use a silicon nitride as a dielectric layer in an LCD device since it is known and commonly used in the art in order to obtain a high dielectric constant.

3. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang, US Patent No. 5,745,195 as applied to claim 1-3 and 5 above, and further in view of Yamazaki, US Patent No. 6,482,684.

Regarding claims 6-7, the modification to Zhang fails to disclose the active layer made of polysilicon by utilizing a catalytic effect of an introduced catalytic element. Yamazaki discloses an TFT having an active layer made of polysilicon by utilizing a catalytic effect of an introduced catalytic element (see abstract), as a switching element in a pixel circuit as well as a driver circuit (figure 6). Therefore, it would have been obvious to one skilled in the art the time of the invention was made to use a TFT element having a polysilicon active layer for a pixel circuit and a driver circuit, in which the polysilicon active layer crystallized by utilizing a catalytic effect of

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an introduced catalytic element as shown by Yamazaki in order to promote crystallization (high crystallization) in a TFT element (see abstract).

Allowable Subject Matter

4. Claims 8-18 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter:

None of the cited art disclose an LCD device comprising a supplementary capacitance using transparent insulating film has a film thickness d so as to satisfy the equation: $d = \lambda / (2 \times n) \times m$, wherein λ is a wavelength at which transmittance is desired to be increased as set forth in claims 8 and 15.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 703-305-0423. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7726 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to read 'Dung Nguyen', with a stylized, cursive script.

DN
10/20/2003

Dung Nguyen
Patent Examiner
GAU 2871